



Research provides new perspectives on recent changes in the Atlantic Ocean

26 May 2016 - Any substantial weakening of a major North Atlantic ocean current system would have a profound impact on the climate of north-west Europe, including the UK.

The Atlantic Meridional Overturning Circulation - part of which is known as the Gulf Stream - has been observed over the past 10 years, and has been seen to weaken over that time, raising the question of whether the weakening has been caused by climate change. New **Met Office research** published today instead suggests that the trend is likely due to variability over decades.

Laura Jackson of the Met Office Hadley Centre is the lead researcher. Commenting on the paper, published in the journal **Nature Geoscience**, she said: "The Atlantic Meridional Overturning Circulation plays a vital role in our climate as it transports heat northwards in the Atlantic and keeps Europe relatively warm."

The Met Office research produced a new ocean 'reanalysis' combining a state-of-the-art model of ocean dynamics with ocean observations from satellites, and ocean floats sampling below the surface. This has captured year-to-year variations and recent decadal trends with unprecedented accuracy.

Laura Jackson said: "Our research produced a picture of how the ocean has evolved over the last couple of decades. The reanalysis reproduces the observed decrease in the **Atlantic Meridional Overturning Circulation** over the past decade, but finds that this was preceded by a period where the circulation intensified. This suggests that decadal timescale variability likely played a key role in the weakening of the circulation seen over the last decade."

The researchers are keen to stress that this does not rule out the possibility that the observed weakening is a combination of decadal variability and a longer term decrease that would only be detectable after more years of observations.

The research also shows a link between the weakening in the Atlantic Meridional Overturning Circulation and decreases in density in the Labrador Sea (between Greenland and Canada) several years earlier. Laura Jackson added: "Continued monitoring of densities in the Labrador Sea may provide us with useful information about future changes in the Atlantic Meridional Overturning Circulation."